

Supplementary Table 3. Sensitivity analysis of statistical tests in Supplementary Table 2. Summary of group-level statistical tests for (A) ^{11}C -DED, (B) ^{18}F -FDG, with and without inclusion of an additional presymptomatic carrier who has passed the average age of onset (AAO).

The Kruskal-Wallis test was performed to compare the pMC, CTR, PiB+ MCI, and Alzheimer's disease groups. Results of the Kruskal-Wallis test are reported as test statistic H (df), where df = 3 is the number of degrees of freedom, followed by the significance value (p). The threshold for statistical significance was set at $p = 0.05$. Results of Mann-Whitney U tests are reported as the significance value (p) and effect size (r) for each pair of diagnostic groups. The CTR groups were composed of non-carrier members of ADAD families (n=16) for ^{18}F -FDG PET, and healthy subjects (n=14) for ^{11}C -DED PET.

CTR = control; ^{11}C -DED = deuterium-L-deprenyl; ^{18}F -FDG = fluorodeoxyglucose; MCI = mild cognitive impairment; ns = not significant; ^{11}C -PiB = Pittsburgh Compound-B; pMC = presymptomatic mutation carrier

A

Regions of Interest	^{11}C -DED binding Kruskal-Wallis H(3) (p value)		^{11}C -DED binding Mann-Whitney U test (p value) (effect size r)					
	pMC, PiB+ MCI, Alzheimer's disease, CTR		pMC vs CTR		pMC vs PiB+ MCI		pMC vs Alzheimer's disease	
	Without	With	Without	With	Without	With	Without	With
Frontal cortex	8.50 (p=0.037)	8.23 (p=0.042)	5 (p=0.005) (r=0.64)	8 (p=0.005) (r=0.63)	ns	ns	ns	ns
Parietal cortex	10.64 (p=0.014)	8.89 (p=0.031)	4 (p=0.004) (r=0.66)	12 (p=0.013) (r=0.55)	ns	ns	8 (p=0.079) (r=0.49)	ns
Anterior cingulate cortex	8.54 (p=0.036)	7.96 (p=0.047)	11 (p=0.026) (r=0.51)	19 (p=0.058) (r=0.42)	14 (p=0.068) (r=0.43)	20 (p=0.096) (r=0.38)	2 (p=0.008) (r=0.73)	3 (p=0.007) (r=0.72)
Thalamus	10.20 (p=0.017)	10.81 (p=0.013)	9 (p=0.016) (r=0.55)	12 (p=0.013) (r=0.55)	11 (p=0.034) (r=0.50)	14 (p=0.028) (r=0.50)	3 (p=0.013) (r=0.69)	4 (p=0.010) (r=0.69)

B

Regions of Interest	¹⁸ F-FDG uptake Kruskal-Wallis H(3) (p values)		¹⁸ F-FDG uptake Mann-Whitney U test statistic (p value) (effect size r)					
	pMC, PiB+ MCI, Alzheimer's disease, CTR		pMC vs CTR		pMC vs PiB+ MCI		pMC vs Alzheimer's disease	
	Without	With	With out	With	Without	With	Without	With
Frontal cortex	17.72 (p<0.001)	17.41 (p=0.001)	ns	ns	9 (p=0.021) (r=0.55)	14 (p=0.028) (r=0.50)	4 (p=0.019) (r=0.65)	6 (p=0.020) (r=0.62)
Parietal cortex	23.38 (p<0.001)	22.99 (p<0.001)	ns	ns	10 (p=0.027) (r=0.52)	15 (p=0.035) (r=0.48)	0 (p=0.003) (r=0.81)	2 (p=0.005) (r=0.76)
Temporal cortex	26.06 (p<0.001)	24.84 (p<0.001)	ns	ns	6 (p=0.009) (r=0.62)	14 (p=0.028) (r=0.50)	1 (p=0.005) (r=0.77)	4 (p=0.010) (r=0.69)
Occipital cortex	10.24 (p=0.017)	9.68 (p=0.021)	ns	ns	ns	ns	ns	ns
Anterior cingulate cortex	12.22 (p<0.001)	11.95 (p=0.008)	ns	ns	ns	ns	4 (p=0.019) (r=0.65)	8 (p=0.039) (r=0.55)
Posterior cingulate cortex	23.01 (p<0.001)	23.17 (p<0.001)	ns	ns	13 (p=0.055) (r=0.45)	18 (p=0.066) (r=0.42)	4 (p=0.019) (r=0.65)	6 (p=0.020) (r=0.62)
Insular cortex	18.27 (p<0.001)	17.15 (p=0.001)	ns	ns	8 (p=0.016) (r=0.57)	16 (p=0.044) (r=0.46)	4 (p=0.019) (r=0.65)	8 (p=0.039) (r=0.55)
Parahippocampus	14.36 (p=0.002)	12.44 (p=0.006)	ns	ns	7 (p=0.012) (r=0.59)	19 (p=0.079) (r=0.40)	5 (p=0.028) (r=0.61)	ns
Caudate nucleus	16.24 (p=0.001)	15.51 (p=0.001)	ns	ns	5 (p=0.007) (r=0.64)	9 (p=0.009) (r=0.60)	3 (p=0.013) (r=0.69)	7 (p=0.028) (r=0.59)
Putamen	8.22 (p=0.042)	8.00 (p=0.046)	ns	ns	12 (p=0.043) (r=0.48)	16 (p=0.044) (r=0.46)	ns	ns
Thalamus	22.46 (p<0.001)	21.26 (p<0.001)	ns	ns	1 (p=0.002) (r=0.73)	8 (p=0.007) (r=0.62)	0 (p=0.003) (r=0.81)	1 (p=0.003) (r=0.79)
Hippocampus	19.07 (p<0.001)	16.85 (p=0.001)	ns	ns	5 (p=0.007) (r=0.64)	16 (p=0.044) (r=0.46)	3 (p=0.013) (r=0.69)	8 (p=0.039) (r=0.55)